What is claimed is:

1. A method for capturing and storing a full Red, Green, Blue (RGB) image data set comprising the steps of:

capturing a full RGB data set as three-color image data with an imager array, said imager array formed on a semiconductor substrate and comprising a plurality of vertical-color-filter detector groups, wherein each of said plurality of vertical-color-filter detector groups is formed on a semiconductor substrate and comprises three detector layers each configured to collect photo-generated carriers of a first polarity, separated by intervening reference layers configured to collect and conduct away photo-generated carriers of opposite polarity, said three detector layer being disposed substantially in vertical alignment with respect to one another and having different spectral sensitivities; and

storing said three-color image data as digital data in a digital storage device without performing interpolation on said three-color image data.

2. The method of claim 1 wherein said step of storing comprises the step of:

storing said three-color image data as digital data in a semiconductor memory device without performing interpolation on said three-color image data.

3. The method of claim 1 wherein said step of storing comprises the step of:

storing said three-color image data as digital data in a magnetic storage device without performing interpolation on said three-color image data.

4. The method of claim 1 wherein the step of storing comprises the step of:

storing said three-color image data as digital data on an optical storage device.

5. The method of claim 1 further comprising the step of:

performing a lossless compression operation on said three-color image data prior to the step of storing said three-color image data in said digital storage device.

6. The method of claim 1 further comprising the step of:

performing a nearly lossless compression operation on said three-color image data prior to storing said three-color image data on said digital storage device.

7. A method for processing digital information from an image sensor that is formed on a semiconductor substrate and includes a plurality of vertical-color-filter detector groups, wherein each of said plurality of vertical-color-filter detector groups has three detector layers configured to collect photo-generated carriers of a first polarity, separated by intervening reference layers configured to collect and conduct away photo generated carriers of opposite polarity, said three detector layers disposed substantially in vertical alignment with one another and having different spectral sensitivities as a function of different depths of said three

detector layers in said semiconductor substrate, said method comprising the steps of:

capturing three-color image data of a full RGB data set of an image using said plurality of vertical-color-filter detector groups;

storing said three color output data as digital data in a digital storage device without performing interpolation on said three color output data; and

retrieving said three color output data as digital data from said digital storage device.

8. The method of claim 7 wherein said step of storing comprises the step of:

storing said three-color image data as digital data in a semiconductor memory device without performing interpolation on said three-color image data.

9. The method of claim 1 wherein said step of storing comprises the step of:

storing said three-color image data as digital data in a magnetic storage device without performing interpolation on said three-color image data.

10. The method of claim 1 wherein the step of storing comprises the step of:

storing said three-color image data as digital data on an optical storage device.

11. The method of claim 7 further comprising the steps of:

performing a lossless compression operation on said three-color image data prior to the step of storing said three-color image data in said digital storage device; and

performing a lossless decompression operation on said three-color input data responsive to retrieving said three-color image data as digital data from said digital storage device.

12. The method of claim 7 further comprising the steps of:

performing a nearly lossless compression operation on said three-color image data prior to storing said three-color image data as said digital data in said digital storage device; and

performing a nearly lossless decompression operation on said three-color image data responsive to retrieving said three-color image data from said digital storage device.

13. A method for storing digital information from a single- chip image sensor that captures images using pixel sensor array of a plurality of vertical-color-filter detector groups wherein each of said plurality of vertical-color-filter detector groups is formed on a semiconductor substrate and has three detector layers configured to collect photo generated carriers of a first polarity, separated by intervening reference layers configured to collect and conduct away photo generated carriers of opposite polarity, said three detector layers disposed substantially in vertical alignment with one another and having different spectral sensitivities as a function of different depths of said three detector layers in said semiconductor substrate, said method comprising the steps of:

capturing three color output data of a full RGB data set of an image from said plurality of vertical-color-filter detector groups; and

storing said three color output data as digital data in a digital storage device without performing interpolation on said three color output data.

14. The method of claim 13 wherein said step of storing comprises the step of:

storing said three color output data as digital data in a semiconductor memory device without performing interpolation on said three color output data.

15. The method of claim 13 wherein said step of storing comprises the step of:

storing said three color output data as digital data in a magnetic storage device without performing interpolation on said three color output data.

16. The method of claim 13 wherein the step of storing comprises the step of:

storing said three color output data as digital data on an optical storage device.

17. The method of claim 13 further comprising the step of:

performing a lossless compression operation on said three color output data prior to the step of storing said three color digital output data in said digital storage device.

18. The method of claim 13 further comprising the step of:

performing a nearly lossless compression operation on said three color output data prior to storing said three color output data on said digital storage device.

19. A method for storing digital information from a single- chip image sensor that captures images using pixel sensor array of a plurality of vertical-color-filter detector groups wherein each of said plurality of vertical-color-filter detector groups is formed on a semiconductor substrate and has three detector layers configured to collect photo generated carriers of a first polarity, separated by intervening reference layers configured to collect and conduct away photo generated carriers of opposite polarity, said three detector layers disposed substantially in vertical alignment with one another and having different spectral

sensitivities as a function of different depths of said three detector layers in said semiconductor substrate, said method comprising the steps of:

capturing three color output data of a full RGB data set of an image from said plurality of vertical-color-filter detector groups;

storing said three color output data as digital data in a digital storage device without performing interpolation on said three color output data; and

retrieving said three-color output data as digital data from said digital storage device.

20. The method of claim 19 wherein said step of storing comprises the step of:

storing said three color output data as digital data in a semiconductor memory device without performing interpolation on said three color output data.

21. The method of claim 19 wherein said step of storing comprises the step of:

storing said three color output data as digital data in a magnetic storage device without performing interpolation on said three color output data.

22. The method of claim 19 wherein the step of storing comprises the step of:

storing said three color output data as digital data on an optical storage device.

23. The method of claim 19 further comprising the steps of:

performing a lossless compression operation on said three color output data prior to the step of storing said three color output data in said digital storage device; and

performing a lossless decompression operation on said three color output data responsive to retrieving said three color digital output data as digital data from said digital storage device.

24. The method of claim 19 further comprising the steps of:

performing a nearly lossless compression operation on said three color output data prior to storing said three color output data as said digital data in said digital storage device; and

performing a nearly lossless decompression operation on said three color output data responsive to retrieving said three color output data from said digital storage device.

25. A method for processing digital information from a pixel sensor array formed on a semiconductor substrate comprising a plurality of vertical-color-filter detector groups, wherein each of said plurality of vertical-color-filter detector groups has three detector layers configured to collect photo-generated carriers of a first polarity, separated by intervening reference layers configured to collect and conduct away photo-generated carriers of opposite polarity, said three detector layers disposed substantially in vertical alignment with one another and having different spectral sensitivities as a function of different depths of said three detector layers in said semiconductor substrate, said method comprising the steps of:

receiving three-color image data of a full RGB data set of an image from said plurality of vertical-color-filter detector groups; and

storing said three-color image data as digital data in a digital storage device without performing interpolation on said three-color image data.

26. The method of claim 25 wherein said step of storing comprises the step of:

storing said three-color image data as digital data in a semiconductor memory device without performing interpolation on said three-color image data.

27. The method of claim 25 wherein said step of storing comprises the step of:

storing said three-color image data as digital data in a magnetic storage device without performing interpolation on said three-color image data.

28. The method of claim 25 wherein the step of storing comprises the step of:

storing said three-color image data as digital data on an optical storage device.

29. The method of claim 25 further comprising the step of:

performing a lossless compression operation on said three-color image data prior to the step of storing said three-color image data in said digital storage device.

30. The method of claim 25 further comprising the step of:

performing a nearly lossless compression operation on said three-color image data prior to storing said three color image data on said digital storage device.

31. A method for processing digital information from a pixel sensor array formed on a semiconductor substrate comprising a plurality of vertical-color-filter detector groups, wherein each of said plurality of vertical-color-filter detector groups has three detector layers configured to collect photo generated carriers of a first polarity, separated by intervening reference layers configured to collect and conduct away photo-generated carriers of opposite polarity, said three detector layers disposed substantially in vertical alignment with one another and having different spectral sensitivities as a function of different depths of said three

detector layers in said semiconductor substrate, said method comprising the steps of:

receiving three-color image data of a full RGB data set of an image from said plurality of vertical-color-filter detector groups;

storing said three-color image data as digital data in a digital storage device without performing interpolation on said three-color image data; and

retrieving said three-color image data as digital data from said digital storage device.

32. The method of claim 31 wherein said step of storing comprises the step of:

storing said three-color image data as digital data in a semiconductor memory device without performing interpolation on said three-color image data.

33. The method of claim 31 wherein said step of storing comprises the step of:

storing said three-color image data as digital data in a magnetic storage device without performing interpolation on said three-color image data.

34. The method of claim 31 wherein the step of storing comprises the step of:

storing said three-color image data as digital data on an optical storage device.

35. The method of claim 31 further comprising the steps of:

performing a lossless compression operation on said three-color image data prior to the step of storing said three-color image data in said digital storage device; and

performing a lossless decompression operation on said three-color image data responsive to retrieving said three -color image data as digital data from said digital storage device.

36. The method of claim 31 further comprising the steps of:

performing a nearly lossless compression operation on said three-color image data prior to storing said three-color image data as said digital data in said digital storage device; and

performing a nearly lossless decompression operation on said three-color output data responsive to retrieving said three-color image data from said digital storage device.